

et al (4,681,688)." These rejections are, in part, respectfully traversed and, in part, overcome by the amendments made therein.

It is respectfully submitted that the references cited relate to a fundamentally different filtering technique from that of the present invention and, in this regard, have the opposite purpose to that of the present invention. More specifically, the present invention relates to a filter assembly in which the exterior surface of the filter element is exposed to the fluid or slurry, and a pump is used to draw the liquid portion of the fluid through the filter element from the external surface to the interior surface of the filter element. As a consequence, a sample of the filtrate can then be collected within the filter and removed by a pump. This is clearly different from, and not obvious from, the filters of the references which relate to the opposite problem of removal of solid matter from contaminated fluid. In this respect, the references all disclose filters into which a slurry is fed. Hydrostatic pressure and/or gravity is then used to remove the liquid or filtrate from the slurry, so that the solid waste remains trapped within the filter itself. Thus, as stated, the references relied on in the rejections here all relate to the opposite problem to that addressed by the present invention and, in fact, teach directly away from the present invention.

Although the purpose of the present invention is not limited to such an application, the invention may be advantageously used as a compact apparatus for collecting small fluid samples which may then be subjected to further analysis. The devices disclosed in the various references cited would be too bulky and would provide no compact mechanism for collecting samples of fluid, and thus would be basically unsuitable for such an application.

Turning to the specific references, the Brown patent discloses a tubular filter into which is introduced a feed stream for hydrostatic filtering. After filtering, the tube is then opened, the filter cake removed and the tube reformed. As discussed at column 2, lines 22-25, and lines 32-24, the weight of the feed to be filtered provides the hydrostatic pressure to force the filtrate through the filter tube. As a consequence, the filtrate is not drawn into the filter but rather the fluid is filtered out of the filter, leaving the solid filter cake to be collected from the filter.

The Beer patent similarly discloses apparatus wherein an effluent is introduced into a cylindrical filter element and wherein the filtrate passes through the filter from the interior to the exterior surface so as to provide separation of solid, sludge-like and dissolved constituents from the effluent.

The Sandov et al patent discloses an apparatus which is broadly similar to that of the Beer patent. The filter, which is a tubular trash net for pre-treating sewage, is used to separate liquid from coarse solid items, e.g., to separate trash from sewage. Again, the effluent may be pumped into the net or may be delivered to the net by gravity, and pressure may then be applied by rollers to remove the filtrate from the net.

It is respectfully submitted that none of the filters disclosed in the references teach or suggest the use of a pump or pump means to draw fluid through the filter from the exterior to the interior surface thereof. The present invention provides the important advantage over these references of allowing a sample of filtrate to be extracted from the contaminated fluid using a compact apparatus. The extracted filtrate may be then drawn out of the filter by the action of the pump and the filtrate then collected for further analysis. In addition, the filtering approach of the present invention could not be implemented using the devices disclosed in any of the references relied on since none of the filter elements in these references is of a rigid construction and because these filter elements rely on the pressure of a liquid to prevent collapse thereof and to force the liquid through the filter. Further, in order to collect a sample of the filtrate with the devices of the references, it would be necessary to provide bulky collection means to collect such a sample. As indicated above, the present invention is capable of being implemented as a substantially more compact analysis device.

In summary, it is respectfully submitted that claim 7 and the claims dependent thereon patentably define over the references relied on in rejecting these claims. With respect to the dependent claims, it is believed that these claims set forth further non-obvious features and, in any event, these claims are patentable for at least the reasons set forth in support of the patentability of parent claim 7.

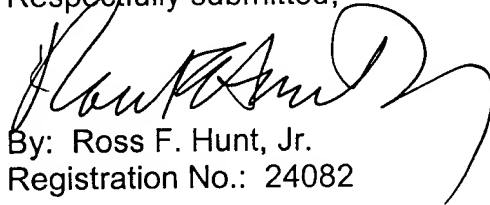
With respect to the rejection of claim 11 based on a combination of references, it is respectfully submitted that claim 11 is separately patentable over these references. Again, the filter elements of the devices disclosed in the references are not of a rigid

construction and it would not be possible to pump the fluid back through the filter elements disclosed therein. Accordingly, it is respectfully submitted that it would not be obvious to attempt to incorporate the distinguishing feature of claim 11 into the filter devices of the cited references. Claim 11 has been amended to underscore the fact that the fluid is pumped back through the filter element from the interior bore of the filter element to the exterior surface of the filter element. Of course, claim 11 is also patentable for at least the reasons set forth in support of the patentability of parent claim 7.

With respect to claim 10, claim 10 has been rewritten in independent form as new claim 17. Because claim 10 has been indicated to be allowable if rewritten in independent form, claim 17 should be allowable together with the rest of the claims now presented.

Allowance of the application in its present form is respectfully solicited.

Respectfully submitted,



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**ATTACHMENT A**  
**Amendments to the Claims**

*Following herewith is a complete listing of the claims, including a marked copy of the currently amended claims.*

Claims 1-6 (Canceled)

7. (Currently Amended) A filter assembly for obtaining a sample of filtrate from a contaminated fluid, the assembly comprising  
a filter element comprising an elongate porous tube having an exterior surface wherein a portion of the exterior surface is arranged to be exposed to a fluid to be filtered; and  
means for incrementally exposing a further portion of the exterior surface of the filter element to the contaminated fluid as the filter element becomes clogged;  
the tube including an interior bore arranged for coupling to an inlet of a pump for drawing filtrate through the filter element from the exterior surface of the filter element to the interior bore of the tube of the filter element.
8. (Currently Canceled)
9. (Currently Amended) Apparatus according to Claim 87 wherein a single drive means is arranged to operate the pump ~~means~~ to draw fluid through the filter element and to advance the filter element to expose further portions of the surface.
10. (Currently Amended) Apparatus according to Claim 97 wherein the assembly includes coupling means arranged to couple a rotary drive to the pump ~~means~~ to draw fluid through the filter element when rotation is applied in a first direction and to advance the filter element when rotation is applied in the opposite direction.
11. (Currently Amended) Apparatus according to Claim 87 wherein the pump ~~means~~ is arranged to pump fluid back through the filter element from the interior surface of the

filter element to the exterior surface of the filter element to effect back-flushing of the filter element.

12. (Original) Apparatus according to Claim 7 wherein the filter assembly is removably coupled to a drive means so that the filter assembly may be renewed without having to renew the drive means.

13. (Original) Apparatus according to Claim 7 wherein the filter element comprises a substantially cylindrical tube.

14. (Currently Amended) Apparatus according to Claim 7 wherein the further portion of the exterior surface of the filter element is ~~advanced~~ incrementally exposed by means of a relatively rotatable threaded shaft or screw and nut member, one of the screw or shaft being arranged to be rotated by drive means.

15. (Previously Canceled).

16. (Previously Canceled).

17. (Newly Added) A filter assembly for obtaining a sample of filtrate from a contaminated fluid, the assembly comprising:

a filter element comprising an elongate porous tube having an exterior surface wherein a portion of the exterior surface is arranged to be exposed to a fluid to be filter; and

means for incrementally exposing a further portion of the exterior surface of the filter element to the contaminated fluid as the filter element becomes clogged;

the interior bore of the tube being arranged to couple to an inlet of a pump for drawing filtrate through the filter element from the exterior surface of the filter element to the interior bore of the filter element;

a single drive means being arranged to operate the pump to draw fluid through the filter element and to advance the filter element to expose further portions of the surface; and

the filter assembly further including coupling means arranged to couple a rotary drive to the pump to draw fluid through the filter element when rotation is applied in a first direction and to advance the filter element when rotation is applied in the opposite direction.